IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Hung-ying Tyan, et al.
Serial No.:	10/828,570
Filing Date:	April 20, 2004
Group Art Unit:	2613
Confirmation No.	5277
Examiner:	Quan Zhen Wang
Title:	***Method and System for Managing Network Traffic***

Mail Stop Appeal Brief - Patents

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

APPEAL BRIEF

Appellants have appealed to the Board of Patent Appeals and Interferences (the "Board") from the decision of the Examiner transmitted April 4, 2008, finally rejecting Claims 1-7, 9-15, 17-23, 25-31, and 33. Appellants filed a Notice of Appeal on July 2, 2008.

Real Party In Interest

This application is currently owned by Fujitsu Limited, as indicated by an assignment recorded on April 20, 2004 in the Assignment Records of the United States Patent and Trademark Office at Reel 015253, Frame 0061.

Related Appeals and Interferences

To the knowledge of Appellants' counsel, there are no other known appeals, interferences or judicial proceedings that may directly affect or be directly affected by or have a bearing on the Board's decision regarding this Appeal.

Status of Claims

Claims 1-7, 9-15, 17-23, 25-31, and 33 are pending in this Application, Claims 1-7, 9-15, 17-23, 25-31, and 33 stand rejected pursuant to a final Office Action transmitted April 4, 2008 (the "*Office Action*") and are all presented for appeal. All pending claims are shown in Appendix A, attached hereto, along with an indication of the status of those claims.

Status of Amendments

All amendments submitted by Appellants have been entered by the Examiner.

Summary of Claimed Subject Matter

Referring to FIGURE 1, there is illustrated a system 10 for managing internet protocol (IP) traffic. System 10 includes an IP network 12 and an optical network 14. IP network 12 provides for the communication of data through any form and/or combination of point-to-point, multicast, unicast or other techniques. IP network 12 includes routers 16 which act as nodes through which data is communicated over IP links 18. *Page 7, lines 1-8.*

Optical network 14 provides lightpath services for the communication of data through the network. Optical network 14 comprises a wavelength division multiplex (WDM) network in which a number of optical channels are communicated over a common path by modulating the channels by wavelength. Optical network 14 may utilize any suitable multiplexing operation, and a channel may represent any suitable separation of available bandwidth. Optical network 14 includes optical crossconnects (OXCs) 20, optical links 22 and other WDM transport equipment. In particular embodiments, links 22 of optical network 14 comprise full-duplex fiber links. *Page 7, lines 9-18.*

In the illustrated embodiment, IP network 12 operates using multi-protocol label switching (MPLS) which communicates traffic, using label switched paths (LSPs), onto a variety of routes to avoid congestion or failures or to enable a particular class or level of service. IP network 12 may be operated by an IP service provider, and optical network 14 may be operated by an optical transport service provider. In particular embodiments, the IP service provider may be a customer of the optical transport service provider and may lease the lightpaths from the optical transport service provider to interconnect IP network routers. *Page 7, line 27-page 8, line 2.*

In some cases, the fee for leasing lightpaths of an optical network for setting up IP links can be a significant portion of an internet service provider's operational expenditure (OPEX) which internet service providers typically attempt to minimize. *Page 8, lines 3-5.*

Intelligent WDM equipment and generalized MPLS (GMPLS) control plane technology have created opportunities for optical transport service providers to provide on-demand lightpath services to internet service providers. With such a service, an internet service provider can activate IP links on demand to meet changing traffic patterns instead of committing to a static and over-provisioned network topology. *Page 8, lines 19-24.*

Referring to FIGURE 2, there is illustrates a traffic manager 30 for managing network traffic of system 10 of FIGURE 1. Traffic manager 30 may be operated by an internet

service provider of IP network 12 and may be located at any suitable position or within any suitable component of system 10. *Page 9, lines 15-19.*

Traffic manager 30 includes an interface 32, a controller 34 and a memory 36. Interface 32 interfaces with components of system 10, including components of IP network 12 and optical network 14 to perform various traffic management tasks. Controller 34 performs various traffic management tasks to avoid congestion, reduce operating costs and maintain certain service levels related to the communication of traffic through IP network 12. Controller 34 may be a microprocessor, controller or any other suitable computing device or resource and is adapted to execute various types of computer instructions in various computer languages for implementing functions available within system 10. Memory 36 may be any form of volatile or nonvolatile memory. Memory 36 includes components, logic modules or software executable by processor 34. *Page 9, line 21-page 10, line 3.*

Referring to FIGURE 3, there is depicted a flowchart illustrating a method for managing traffic of IP network 12. The method begins at step 100 where an IP network is initially provisioned. *Page 10, lines 6-9.*

At step 102, the network is monitored to detect and respond to variations in traffic demands and changes in network status, such as link failure and congestion. At step 104, it is determined whether any of the IP links are congested or under-utilized. If an IP link is congested or underutilized, the method proceeds to step 106 where the intermediate LSR that makes the detection selects an LSP for re-route according to a selection algorithm. *Page 10, lines 15-21.*

In particular situations, traffic demand may increase and may surpass the capacity of the IP network such that MPLS traffic engineering is no longer effective in dealing with network congestion. As a result, particular embodiments utilize a hybrid path routing operation in which the new route of an LSP in consideration is computed on a union of existing IP topology and a WDM topology subset (e.g., a topology subset of optical network 14 of FIGURE 1) disclosed by an optical transport service provider. The subset of the WDM topology may be referred to as transformed topology. *Page 10, lines 23-30.*

At step 108, the ingress LSR, or head node, computes hybrid path routing for re-routing the selected LSP. The result of the hybrid path route computation may consist of existing IP links and the links on the transformed topology. For example, a particular hybrid path route may include a combination of IP links 18 of IP network 12 of FIGURE 1 and links

22 of optical network 14. These new links may be referred to as candidate links. If utilized, candidate links in the hybrid path may be set up in the WDM layer by means of optical traffic engineering and may be activated in the IP layer as newly added IP links. *Page 10, line 31-page 11, line 6.*

At step 110, it is determined whether network cost would be reduced with the performance of this hybrid path route. If performance of the hybrid path route would reduce network cost, then the method proceeds to step 112 where it is determined whether the computed hybrid path route actually includes candidate links from the WDM layer. If candidate links from the WDM layer are included in the hybrid path route, the method proceeds to step 114 where new IP links are activated on those candidate links. If, at step 110, it is determined that the network cost is not reduced upon performance of the computed route, the method returns to step 102. *Page 11, lines 9-17.*

At step 116 the LSP is rerouted according to the calculated hybrid path route. Signaling is performed to switch the LSP from the old route to the new route, and the old route is torn down. At step 118 it is determined whether the reroute results in idle IP links. If so, the method proceeds to step 120 where the idle IP links are removed to reduce leasing costs. *Page 11, lines 18-22.*

As indicated above, transformed topology refers to a subset of optical network 14 topology disclosed by an optical transport service provider to add additional capacity for traffic on the IP network. *Page 12, line 31-page 13, line 1.*

As indicated above, particular embodiments utilize a hybrid path routing operation in which the new route of an LSP in consideration is computed on a union of existing IP topology and a WDM topology subset disclosed by an optical transport service provider. With the transformed topology, an internet service provider can augment existing IP topology with potential links that may be added to the IP network in response to a traffic engineering event. *Page 13, line 28-page 14, line 3.*

As indicated above, particular embodiments of the present invention overlay a WDM topology over an IP topology such that only a representative of the WDM topology is revealed to an internet service provider. Thus, when managing IP traffic, the internet service provider may not have to be concerned with details of the entire WDM topology or optical traffic engineering decisions. Instead, the internet service provider may only receive a

topology indicating WDM links negotiated and available for use by an optical transport service provider. *Page 16, lines 7-13.*

With regard to the independent claims currently under Appeal, Appellants provide the following concise explanation of the subject matter recited in the claim elements. For brevity, ***Appellants do not necessarily identify every portion of the Specification and drawings relevant to the recited claim elements***. Additionally, this explanation should not be used to limit Appellants' claims but is intended to assist the Board in considering the appeal of this Application.

For example, Independent Claim 1 recites the following:

A method for managing network traffic, comprising:

provisioning an internet protocol (IP) network for communicating traffic, the IP network comprising a plurality of nodes coupled by IP links (*see e.g.,* page 7, lines 2-8 and page 10, lines 6-10);

monitoring the IP network for a congestion event (*see e.g.,* page 10, lines 15-19);

upon detecting a congestion event, selecting a label switched path (LSP) of the IP network for reroute (*see e.g.,* page 10, lines 19-22);

computing a hybrid path route for the selected LSP between a first node and a second node of the plurality of nodes, the hybrid path route comprising at least one IP link and at least one lightpath of a wavelength division multiplex (WDM) topology coupled to the IP network (*see e.g.,* page 10, lines 26-29 and page 11, lines 1-3);

determining whether performance of the hybrid path route for the selected LSP reduces costs (*see e.g.,* page 11, lines 8-11); and

if the hybrid path route reduces costs:

activating a new IP link on each of the at least one lightpaths of the WDM topology (*see e.g.,* page 11, lines 13-15); and

rerouting the selected LSP according to the hybrid path route (*see e.g.,* page 11, lines 18-20).

As another example, Independent Claim 9 recites the following:

A system for managing network traffic, comprising:

an internet protocol (IP) network for communicating traffic, the IP network comprising a plurality of nodes coupled by IP links (*see e.g.,* page 7, lines 2-8 and page 10, lines 6-10);

a wavelength division multiplex (WDM) topology coupled to the IP network, the WDM topology comprising a plurality of lightpaths operable to communicate optical traffic (*see e.g.,* page 7, lines 9-18); and

a controller operable to (*see e.g.,* page 9, lines 21-28):

provision the IP network for communicating traffic (*see e.g.,* page 9, lines 21-28);

monitor the IP network for a congestion event (*see e.g.,* page 10, lines 15-19);

upon detecting a congestion event, select a label switched path (LSP) of the IP network for reroute (*see e.g.,* page 10, lines 19-22);

compute a hybrid path route for the selected LSP between a first node and a second node of the plurality of nodes, the hybrid path route comprising at least one of the IP links and at least one of the plurality of lightpaths of the WDM topology (*see e.g.,* page 10, lines 26-29 and page 11, lines 1-3);

determine whether performance of the hybrid path route for the selected LSP reduces costs (*see e.g.,* page 11, lines 8-11); and

if the hybrid path route reduces costs:

activate a new IP link on each of the at least one lightpaths of the plurality of lightpaths of the WDM topology (*see e.g.,* page 11, lines 13-15); and

reroute the selected LSP according to the hybrid path route (*see e.g.,* page 11, lines 18-20).

As another example, Independent Claim 17 recites the following:

Logic for managing network traffic, the logic encoded in computer readable media and operable when executed to:

provision an internet protocol (IP) network for communicating traffic, the IP network comprising a plurality of nodes coupled by IP links (*see e.g.,* page 7, lines 2-8 and page 10, lines 6-10);

monitor the IP network for a congestion event (*see e.g.,* page 10, lines 15-19);

upon detecting a congestion event, select a label switched path (LSP) of the IP network for reroute (*see e.g.,* page 10, lines 19-22);

compute a hybrid path route for the selected LSP between a first node and a second node of the plurality of nodes, the hybrid path route comprising at least one IP link and at least one lightpath of a wavelength division multiplex (WDM) topology coupled to the IP network (*see e.g.,* page 10, lines 26-29 and page 11, lines 1-3);

determine whether performance of the hybrid path route for the selected LSP reduces costs (*see e.g.,* page 11, lines 8-11); and

if the hybrid path route reduces costs:

activate a new IP link on each of the at least one lightpaths of the WDM topology (*see e.g.,* page 11, lines 13-15); and

reroute the selected LSP according to the hybrid path route (*see e.g.,* page 11, lines 18-20).

As another example, Independent Claim 25 recites the following:

A system for managing network traffic, comprising:

means for provisioning an internet protocol (IP) network for communicating traffic, the IP network comprising a plurality of nodes coupled by IP links (*see e.g.,* page 7, lines 2-8 and page 10, lines 6-10);

means for monitoring the IP network for a congestion event (*see e.g.,* page 10, lines 15-19);

means for, upon detecting a congestion event, selecting a label switched path (LSP) of the IP network for reroute (*see e.g.,* page 10, lines 19-22);

means for computing a hybrid path route for the selected LSP between a first node and a second node of the plurality of nodes, the hybrid path route comprising at least one IP link and at least one lightpath of a wavelength division multiplex (WDM) topology coupled to the IP network (*see e.g.,* page 10, lines 26-29 and page 11, lines 1-3);

means for determining whether performance of the hybrid path route for the selected LSP reduces costs (*see e.g.,* page 11, lines 8-11); and

if the hybrid path route reduces costs:

means for activating a new IP link on each of the at least one lightpaths of the WDM topology (*see e.g.,* page 11, lines 13-15); and

means for rerouting the selected LSP according to the hybrid path route (*see e.g.,* page 11, lines 18-20).

As another example, Independent Claim 33 recites the following:

A method for managing network traffic, comprising:

provisioning an internet protocol (IP) network for communicating traffic, the IP network comprising a plurality of nodes coupled by IP links, each of the plurality of nodes comprising an IP router (*see e.g.,* page 7, lines 2-8 and page 10, lines 6-10);

monitoring the IP network for a congestion event (*see e.g.,* page 10, lines 15-19);

upon detecting a congestion event, selecting a label switched path (LSP) of the IP network for reroute (*see e.g.,* page 10, lines 19-22);

receiving a transformed topology constructed by an optical transport service provider of a wavelength division multiplex (WDM) topology, the transformed topology comprising a subset of available lightpaths of the WDM topology, each lightpath of the WDM topology coupling optical crossconnects of the WDM topology (*see e.g.,* page 10, lines 26-30 and page 12, line 31-page 13, line 1);

computing, based on the transformed topology, a hybrid path route for the selected LSP between a first node and a second node of the plurality of nodes, the hybrid path route comprising at least one IP link and at least one lightpath of the WDM topology coupled to the IP network (*see e.g.,* page 10, lines 26-29; page 11, lines 1-3 and page 13, line 28-page 14, line 3);

determining whether performance of the hybrid path route for the selected LSP reduces costs (*see e.g.,* page 11, lines 8-11);

if the hybrid path route reduces costs:

activating a new IP link on each of the at least one lightpaths of the WDM topology (*see e.g.,* page 11, lines 13-15); and

rerouting the selected LSP according to the hybrid path route (*see e.g.,* page 11, lines 18-20); and

decommissioning an idle IP link after rerouting the selected LSP (*see e.g.,* page 11, lines 20-22 and page 15, lines 3-4.

Grounds of Rejection to be Reviewed on Appeal

Appellants request that the Board review the Examiner's rejection of Claims 1-2, 4-7, 9-10, 12-15, 17-18, 20-23, 25-26, 28-31, and 33 under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent Application Publication No. 2003/0117678 A1 filed by Chang et al. ("*Chang*") and Claims 3, 11, 19 and 27 under 35 U.S.C. § 103(a) as being unpatentable over *Chang* in view of U.S. Patent No. 6,882,627 issued to Pieda et al. ("*Pieda*").

Argument

The Examiner rejected Claims 1-2, 4-7, 9-10, 12-15, 17-18, 20-23, 25-26, 28-31, and 33 under 35 U.S.C. § 102(a) as being anticipated by *Chang*. The Examiner also rejected Claims 3, 11, 19, and 27 under 35 U.S.C. § 103(a) as being unpatentable over *Chang* in view of *Pieda*. Appellants respectfully traverse these rejections at least for the reasons provided below.

I. The Examiner's Rejection of Claims 1-2, 4-7, 9-10, 12-15, 17-18, 20-23, 25-26, 28-31, and 33 under 35 U.S.C. § 102 is Improper

To anticipate a claim, each and every limitation must be found in a reference. *See* MPEP § 2131. "The identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 9 USPQ 2d 1913, 1920 (Fed. Cir. 1989). In addition, "[t]he elements must be arranged as required by the claim . . . ." *In re Bond*, 15 USPQ 2d 1566 (Fed. Cir. 1990).

Chang does not disclose each element of Claims 1-2, 4-7, 9-10, 12-15, 17-18, 20-23, 25-26, 28-31, and 33 in as complete detail as is contained therein. Therefore the Examiner's rejections under 35 U.S.C. § 102 are improper and the rejections should be overturned.

A. Chang *Does Not Disclose Each Element of Claims 1, 9, 17, 25 and 33*

Claim 1 recites computing a hybrid path route for a selected label switched path (LSP) between a first node and a second node of the plurality of nodes, the hybrid path route comprising at least one IP link and at least one lightpath of a wavelength division multiplex (WDM) topology coupled to the IP network. This is not anticipated by *Chang*.

The Examiner contends that the above identified elements of Claim 1 are disclosed by FIG. 36A of *Chang*. *Office Action*, pages 2-3. The Examiner bases its contention on "the IP link between the IP nodes (routers) and . . . the WDM links with in 3625." *Office Action*, pages 2-3. Notwithstanding the fact that a high-level block diagram of a network can not disclose the step of computing a hybrid path route, the detailed description of *Chang* only discusses routing with respect to wavelength division multiplex (WDM) components. In other words, *Chang* does not disclose computing a hybrid path that includes an IP link and a light path.

The written description of *Chang* corresponding to FIG. 36A can be found under the heading "Secure Optical Layer Control Module." *Chang*, paragraph [0223]. Here *Chang* indicates that the secure data network 3615 (the network comprising IP links) is coupled to the public optical network 3625 (the network comprising the WDM links). *Chang*, paragraph [0224]. Within this framework *Chang* only discloses determining routing within the optical network. Thus, *Chang* does not disclose computing a hybrid path route — it only discloses computing a path route using optical links. More specifically, *Chang* discloses receiving a packet from an IP router, converting it into a suitable optical form and then routing it through all optical components until it reaches its destination. *See e.g., Chang*, FIGS. 17-19, 28, 29, 31, and 36; and paragraphs [0155]-[0156], [0196], [0197], [0212] and [0224].

The following examples from *Chang* further illustrate that to the extent *Chang* discloses computing a route, the computed route is entirely within the optical network and thus not a hybrid path route. The first example is found in paragraph [0113] where *Chang* discloses the routing protocol and the functions it performs. *Chang*, paragraph [0113]. "Each network element 121-125 in combination with NC&M 220 effects a routing protocol." *Chang*, paragraph [0113]. The network elements 121-125 use the routing protocol to "forward measured information to NC&M 220 for routing computations." *Chang*, paragraph [0113]. After calculating the routing tables NC&M 220 "disseminates the routing tables to each network element 121-125." *Chang*, paragraph [0113]. Upon receiving "a connection request from an IP router . . . information from the NC&M . . . [is] inputted in optical signaling header 210." *Chang*, paragraph [0113]. "Packets are [then] routed through network 200 using the information in signaling header 210." *Chang*, paragraph [0114]. As can be seen in this example, the information needed for routing is collected and distributed among network elements 121-125 which are optical components of optical network 200. *See e.g., Chang*, paragraph [0104] ("optical network 200" and "WDM network elements 121-125"). Therefore, the route that is determined by *Chang* is not a hybrid route path.

Another similar example is found in paragraph [0105] of *Chang*. In paragraph [0105] it is disclosed that "the overall path from source 123 to destination 122 includes paths 201 and 202 in cascade, both utilizing wavelength WP." *Chang*, paragraph [0105]. Here *Chang* clearly discloses the overall path comprising only optical path segments (paths 201 and 202).

Another example can be found at paragraph [0119] in which *Chang* states that "the global routing tables [are downloaded] to each of the elements" of the WDM backbone network 500. *Chang*, paragraph [0119]. Once again there is no mention of anything other than optical network components.

Yet another example is found with respect to FIG. 36A and the corresponding description in paragraph [0224]. "Module 3610 has the important function of maintaining information on the status of the network as a whole, that is, public optical network 3625." *Chang*, paragraph [0224]. This information includes "packet loss, throughput, and delay" which may be used to "develop a database of links that are the 'best' links to use for any given transmission application." *Chang*, paragraph [0224]. *Chang* again clearly recites collecting information from optical networking components without discussing collecting such information from components other than those that are a part of optical network 3625. As is evident, *Chang* is only concerned with determining paths within the optical networks.

As another example, beginning at paragraph [0116] *Chang* provides a "Routing Example." *Chang*, paragraph [0116]. The provided routing example is for a "WDM circuit-switched backbone network." *Chang*, paragraph [0117].

Paragraph [0153] presents yet another example where it states that the introduction of two Plug-and-Play modules "brought optical label switching capability to the then existing circuit-switched network elements." *Chang*, paragraph [0153].

As yet another example, *Chang* discloses that "[m]odule 3610 has the important function of maintaining information on the status of the network as a whole, that is public optical network 3625." *Chang*, paragraph [0224].

From the foregoing it can be seen that *Chang* discloses routing within an optical network. The mere fact that the optical network is coupled to IP routers does not disclose computing a hybrid path that includes both an IP link and a lightpath as required by Claim 1.

In response to similar arguments, the Examiner quotes Appellants' Abstract and contends that "Chang clearly and specifically illustrated the figures that the nodes are IP nodes (IP routers) and therefore the links between the IP nodes are IP links," *Office Action*,

page 5. Appellants do not contest that *Chang* discloses the existence of IP networks and WDM networks. However, neither the figures nor the written description of *Chang* disclose computing a hybrid path route. The figures of *Chang* merely depict that the optical network is coupled to IP networks. The disclosure of *Chang* repeatedly discusses how routing may be performed within the optical network but never discusses routing outside the optical network (e.g., within the electrical network). Thus, any route computed by *Chang* is purely through optical components and therefore is not a hybrid path route.

The Examiner also contends that "Chang's network comprises a route comprising at least one IP link and at least one lightpath of a wavelength division multiplex (WDM) topology coupled to the IP network." *Office Action*, page 5. However, Appellants again point out that *Chang* only discloses routing within the optical network. The mere fact that a packet may travel along IP links before or after reaching the optical network of *Chang* does not mean that *Chang* discloses computing a hybrid path route. In other words, the routes computed by *Chang* route a packet between IP networks, not through them. More specifically, *Chang* discloses receiving a packet from an IP router, converting it into a suitable optical form and then routing it through all optical components until it reaches its destination. *See e.g.*, *Chang*, FIGS. 17-19, 28, 29, 31, and 36; and paragraphs [0155]-[0156], [0196], [0197], [0212] and [0224]. Thus, *Chang* does not disclose computing a hybrid path route for a selected label switched path (LSP) between a first node and a second node of the plurality of nodes, the hybrid path route comprising at least one IP link and at least one lightpath of a wavelength division multiplex (WDM) topology coupled to the IP network.

Accordingly, for at least these reasons, Appellants respectfully submit Claim 1 is allowable, as are all claims depending therefrom. For at least certain analogous reasons, Appellants respectfully submit that Claims 9, 17, 25 and 33 are allowable, as are all claims depending therefrom.

B. Chang *Does Not Disclose Each Element of Claim 33*

In addition to the reasons provided above with respect to Claim 1, Claim 33 recites additional limitations not addressed by the Examiner. For example, Claim 33 recites receiving a transformed topology constructed by an optical transport service provider of a wavelength division multiplex (WDM) topology, the transformed topology comprising a

subset of available lightpaths of the WDM topology, each lightpath of the WDM topology coupling optical crossconnects of the WDM topology. This limitation is not addressed by the Examiner in rejecting Claim 33. Despite Appellants' previously request for the Examiner to provide Appellants with the basis of the rejection of Claim 33 the Examiner has continued to discuss the rejection of Claim 33 with that of Claim 1 without providing support for the additional elements recited in Claim 33. *Office Action*, pages 2-3.

Furthermore, the Examiner has all but conceded that *Chang* does not disclose each of the limitations of Claim 33. More specifically, in rejecting Claim 3, under 35 U.S.C. 103(a), the Examiner concedes that "Chang does not specifically disclose using a transformed topology to calculate the hybrid path." *Office Action,* page 4. Because the Examiner has conceded that at least one of the limitations of Claim 33 is not disclosed by *Chang* the Examiner has not provided a basis for rejecting Claim 33 under 35 U.S.C. 102 using *Chang*. Accordingly, for at least these additional reasons, Appellants respectfully submit Claim 33 is allowable.

C. Chang *Does Not Disclose Each Element of Claims 4, 12, 20 and 28*

Claim 4 depends from Claim 1. For at least the reasons provided above with respect to Claim 1, Claim 4 is allowable. In addition, Claim 4 recites that determining whether performance of the hybrid path route for the selected LSP reduces costs comprises accounting for a cost associated with each IP link and each lightpath of the hybrid path route. The Examiner contends that this is disclosed in *Chang* paragraph [0105]. *Office Action*, page 3. As discussed above, *Chang* is only concerned with routing and costs associated with optical components. *See e.g. Chang*, Abstract, paragraphs [0099] and [0105]. More specifically, in paragraph [0105], relied on by the Examiner, *Chang* discloses "[e]ach destination is associated with a preferred path which would minimize 'the cost' —in FIG. 2, the overall path from source 123 to destination 122 includes paths 201 and 202 in cascade, both utilizing wavelength WP." *Chang*, paragraph [0105]. Thus, the only cost identified in paragraph [0105] of *Chang* is based on optical paths 201 and 202. Furthermore, all the information gathered and calculations performed by the routing protocol disclosed by *Chang* are done with, and distributed to, optical network elements 121-135. *Chang*, paragraph [0113]. More specifically, *Chang* does not disclose the routing protocol measuring network parameters for

any of the links of the electrical layer comprising the IP routers 111 and 112. Thus, *Chang* does not disclose determining whether performance of the hybrid path route for the selected LSP reduces costs comprises accounting for a cost associated with each IP link and each lightpath of the hybrid path route.

In response to similar arguments the Examiner contends that *Chang* inherently discloses the limitations of Claim 4. *Office Action*, pages 7-8. The Examiner contends that "*Chang* explicitly discloses that 'each destination is associated with a preferred path which would minimize the cost', and the cost 'is computed based on the total propagation distance, the number of hops, and the traffic load.'" *Office Action*, page 7. From this the Examiner contends that "[i]t is clear that the reduction of the costs in *Chang* read the claimed limitation of reducing costs comprises 'accounting for a cost associated with each IP link and each lightpath of the hybrid path route.'" *Office Action*, pages 7-8. The Examiner further contends that "because *Chang* discloses hybrid paths in the network, the reduction of the costs of *Chang* reads on the claimed limitation." *Office Action*, page 8.

With respect to inherency, the M.P.E.P. states that:

> To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'

M.P.E.P. § 2112 (quoting *In re Robertson*, 49 U.S.P.Q.2d 1949, 1150-51 (Fed. Cir. 1999)). As discussed above, *Chang*, at best, only discloses a cost associated with optical links. Furthermore, as discussed above, *Chang* only discloses routing within an optical network. *See e.g.*, *Chang*, paragraph [0105] ("overall path from source 123 to destination 122" is only through optical network 200). Because *Chang* only discloses costs associated with optical links and because routing is limited to within the optical network, it can not be said that *Chang* necessarily includes accounting for the cost associated with an IP link as required for a rejection based on inherency. Thus, *Chang* does not inherently disclose that determining whether performance of the hybrid path route for the selected LSP reduces costs comprises accounting for a cost associated with each IP link and each lightpath of the hybrid path route.

Therefore, for at least this additional reason Appellants respectfully submit that Claim 4 is allowable. For at least certain analogous reasons, Appellants submit that Claims 12, 20 and 28 are allowable.

II. The Examiner's Rejection of Claims 3, 11, 19, and 27 under 35 U.S.C. § 103 is Improper

The proposed combination of *Chang* and *Pieda* fails to disclose, teach or suggest each element of Claims 3, 11, 19, and 27. For example, Claim 3 recites receiving a transformed topology constructed by an optical transport service provider of the WDM topology, the transformed topology comprising a subset of available lightpaths of the WDM topology. This is not disclosed, taught or suggested by the combination of *Chang* and *Pieda*.

The Examiner concedes that *Chang* does not "disclose using a transformed topology to calculate the hybrid path." *Office Action*, page 4. The Examiner then contends that "Pieda discloses to calculate a path using a transformed topology (fig. 3C)." *Office Action*, page 4. However, Claim 3 does not merely recite receiving a transformed topology, but rather a transformed topology comprising a subset of available lightpaths of the WDM topology. This is not disclosed by *Pieda*.

Pieda discloses that "FIG. 3C shows the network of FIG. 3A after the SRCGs 50, 52 identified in FIG. 3B have been transformed." *Pieda*, column 7, lines 40-42. Looking at FIGS. 3A-3C there is the same number of links in all three topologies. *Pieda*, FIGS. 3A-3C. Furthermore, *Pieda* discloses that the "transformation preferably involves transforming the link requiring transformation into a forward unidirectional link and a reverse unidirectional link each having a respective cost." *Pieda*, column 2, lines 45-49. There is nothing in *Pieda* which discloses, teaches or suggests that the transformed topology is a subset of available lightpaths of the WDM topology. If anything, it would appear that the transformation disclosed by *Pieda* creates additional links.

Therefore, for at least this additional reason Appellants respectfully submit that Claim 3 is allowable. For at least certain analogous reasons, Appellants submit that Claims 11, 19 and 27 are allowable.

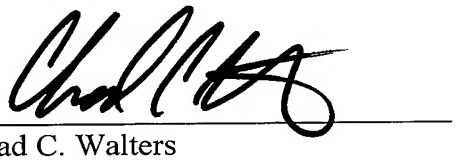
CONCLUSION

Appellants have demonstrated that the present invention, as claimed, is clearly distinguishable over the prior art cited by the Examiner. Therefore, Appellants respectfully request the Board of Patent Appeals and Interferences to reverse the Examiner's final rejection of the pending claims and instruct the Examiner to issue a notice of allowance of all pending claims.

A filing fee of $510.00 is due. The Commissioner is hereby authorized to charge this fee of $510.00 and any additional fees or credit any overpayments to Deposit Account No. 02-0384 of Baker Botts L.L.P.

Respectfully submitted,

BAKER BOTTS L.L.P.
Attorneys for Appellants



Chad C. Walters
Reg. No. 48,022

Date: October 2, 2008

Correspondence Address:

Customer Number 05073

Appendix A: Claims on Appeal

1. (Previously presented) A method for managing network traffic, comprising:

provisioning an internet protocol (IP) network for communicating traffic, the IP network comprising a plurality of nodes coupled by IP links;

monitoring the IP network for a congestion event;

upon detecting a congestion event, selecting a label switched path (LSP) of the IP network for reroute;

computing a hybrid path route for the selected LSP between a first node and a second node of the plurality of nodes, the hybrid path route comprising at least one IP link and at least one lightpath of a wavelength division multiplex (WDM) topology coupled to the IP network;

determining whether performance of the hybrid path route for the selected LSP reduces costs; and

if the hybrid path route reduces costs:

activating a new IP link on each of the at least one lightpaths of the WDM topology; and

rerouting the selected LSP according to the hybrid path route.

2. (Original) The method of Claim 1, further comprising decommissioning an idle IP link after rerouting the selected LSP.

3. (Original) The method of Claim 1:

further comprising receiving a transformed topology constructed by an optical transport service provider of the WDM topology, the transformed topology comprising a subset of available lightpaths of the WDM topology; and

wherein the hybrid path is computed based on the transformed topology.

4. (Original) The method of Claim 1, wherein determining whether performance of the hybrid path route for the selected LSP reduces costs comprises accounting for a cost associated with each IP link and each lightpath of the hybrid path route.

5. (Original) The method of Claim 1, wherein activating a new IP link on each of the at least one lightpaths of the WDM topology comprises:

allocating an unused router port on each end of each of the at least one lightpaths; and

activating the allocated router ports with respective established lightpaths.

6. (Original) The method of Claim 1, wherein each of the plurality of nodes of the IP network comprises an IP router.

7. (Original) The method of Claim 1, wherein each of the lightpaths of the WDM topology couples optical crossconnects of the WDM topology.

8. (Canceled)

9. (Previously presented) A system for managing network traffic, comprising:

an internet protocol (IP) network for communicating traffic, the IP network comprising a plurality of nodes coupled by IP links;

a wavelength division multiplex (WDM) topology coupled to the IP network, the WDM topology comprising a plurality of lightpaths operable to communicate optical traffic; and

a controller operable to:

provision the IP network for communicating traffic;

monitor the IP network for a congestion event;

upon detecting a congestion event, select a label switched path (LSP) of the IP network for reroute;

compute a hybrid path route for the selected LSP between a first node and a second node of the plurality of nodes, the hybrid path route comprising at least one of the IP links and at least one of the plurality of lightpaths of the WDM topology;

determine whether performance of the hybrid path route for the selected LSP reduces costs; and

if the hybrid path route reduces costs:

activate a new IP link on each of the at least one lightpaths of the plurality of lightpaths of the WDM topology; and

reroute the selected LSP according to the hybrid path route.

10. (Original) The system of Claim 9, wherein the controller is further operable to decommission an idle IP link after rerouting the selected LSP.

11. (Original) The system of Claim 9, wherein:

the controller is further operable to receive a transformed topology constructed by an optical transport service provider of the WDM topology, the transformed topology comprising a subset of available lightpaths of the WDM topology; and

wherein the hybrid path is computed based on the transformed topology.

12. (Original) The system of Claim 9, wherein a controller operable to determine whether performance of the hybrid path route for the selected LSP reduces costs comprises a controller operable to account for a cost associated with each IP link and each lightpath of the hybrid path route.

13. (Original) The system of Claim 9, wherein a controller operable to activate a new IP link on each of the at least one lightpaths of the plurality of lightpaths of the WDM topology comprises a controller operable to:

allocate an unused router port on each end of each of the at least one lightpaths; and

activate the allocated router ports with respective established lightpaths.

14. (Original) The system of Claim 9, wherein each of the plurality of nodes of the IP network comprises an IP router.

15. (Original) The system of Claim 9, wherein each of the plurality of lightpaths of the WDM topology couples optical crossconnects of the WDM topology.

16. (Canceled)

17. (Previously presented) Logic for managing network traffic, the logic encoded in computer readable media and operable when executed to:

provision an internet protocol (IP) network for communicating traffic, the IP network comprising a plurality of nodes coupled by IP links;

monitor the IP network for a congestion event;

upon detecting a congestion event, select a label switched path (LSP) of the IP network for reroute;

compute a hybrid path route for the selected LSP between a first node and a second node of the plurality of nodes, the hybrid path route comprising at least one IP link and at least one lightpath of a wavelength division multiplex (WDM) topology coupled to the IP network;

determine whether performance of the hybrid path route for the selected LSP reduces costs; and

if the hybrid path route reduces costs:

activate a new IP link on each of the at least one lightpaths of the WDM topology; and

reroute the selected LSP according to the hybrid path route.

18. (Original) The logic of Claim 17, further operable when executed to decommission an idle IP link after rerouting the selected LSP.

19. (Original) The logic of Claim 17:

further operable when executed to receive a transformed topology constructed by an optical transport service provider of the WDM topology, the transformed topology comprising a subset of available lightpaths of the WDM topology; and

wherein the hybrid path is computed based on the transformed topology.

20. (Original) The logic of Claim 17, wherein logic operable when executed to determine whether performance of the hybrid path route for the selected LSP reduces costs comprises logic operable when executed to account for a cost associated with each IP link and each lightpath of the hybrid path route.

21. (Original) The logic of Claim 17, wherein logic operable when executed to activate a new IP link on each of the at least one lightpaths of the WDM topology comprises logic operable when executed to:

allocate an unused router port on each end of each of the at least one lightpaths; and

activate the allocated router ports with respective established lightpaths.

22. (Original) The logic of Claim 17, wherein each of the plurality of nodes of the IP network comprises an IP router.

23. (Original) The logic of Claim 17, wherein each of the lightpaths of the WDM topology couples optical crossconnects of the WDM topology.

24. (Canceled)

25. (Original) A system for managing network traffic, comprising:

means for provisioning an internet protocol (IP) network for communicating traffic, the IP network comprising a plurality of nodes coupled by IP links;

means for monitoring the IP network for a congestion event;

means for, upon detecting a congestion event, selecting a label switched path (LSP) of the IP network for reroute;

means for computing a hybrid path route for the selected LSP between a first node and a second node of the plurality of nodes, the hybrid path route comprising at least one IP link and at least one lightpath of a wavelength division multiplex (WDM) topology coupled to the IP network;

means for determining whether performance of the hybrid path route for the selected LSP reduces costs; and

if the hybrid path route reduces costs:

means for activating a new IP link on each of the at least one lightpaths of the WDM topology; and

means for rerouting the selected LSP according to the hybrid path route.

26. (Original) The system of Claim 25, further comprising means for decommissioning an idle IP link after rerouting the selected LSP.

27. (Original) The system of Claim 25:

further comprising means for receiving a transformed topology constructed by an optical transport service provider of the WDM topology, the transformed topology comprising a subset of available lightpaths of the WDM topology; and

wherein the hybrid path is computed based on the transformed topology.

28. (Original) The system of Claim 25, wherein means for determining whether performance of the hybrid path route for the selected LSP reduces costs comprises means for accounting for a cost associated with each IP link and each lightpath of the hybrid path route.

29. (Original) The system of Claim 25, wherein means for activating a new IP link on each of the at least one lightpaths of the WDM topology comprises:

means for allocating an unused router port on each end of each of the at least one lightpaths; and

means for activating the allocated router ports with respective established lightpaths.

30. (Original) The system of Claim 25, wherein each of the plurality of nodes of the IP network comprises an IP router.

31. (Original) The method of Claim 25, wherein each of the lightpaths of the WDM topology couples optical crossconnects of the WDM topology.

32. (Canceled)

33. (Original) A method for managing network traffic, comprising:

provisioning an internet protocol (IP) network for communicating traffic, the IP network comprising a plurality of nodes coupled by IP links, each of the plurality of nodes comprising an IP router;

monitoring the IP network for a congestion event;

upon detecting a congestion event, selecting a label switched path (LSP) of the IP network for reroute;

receiving a transformed topology constructed by an optical transport service provider of a wavelength division multiplex (WDM) topology, the transformed topology comprising a subset of available lightpaths of the WDM topology, each lightpath of the WDM topology coupling optical crossconnects of the WDM topology;

computing, based on the transformed topology, a hybrid path route for the selected LSP between a first node and a second node of the plurality of nodes, the hybrid path route comprising at least one IP link and at least one lightpath of the WDM topology coupled to the IP network;

determining whether performance of the hybrid path route for the selected LSP reduces costs;

if the hybrid path route reduces costs:

activating a new IP link on each of the at least one lightpaths of the WDM topology; and

rerouting the selected LSP according to the hybrid path route; and

decommissioning an idle IP link after rerouting the selected LSP.

Appendix B: Evidence

NONE

Appendix C: Related Proceedings – Court or Board Decisions

NONE